

PRELIMINARY NOTICE OF NEW JAPANESE ECHINOIDS.

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Since the publication of my paper on *Asthenosoma* in Vol. I, Part I of this periodical I have found many new species of echinoids from various parts of Japan. The following contains an account only of their important diagnostic characters. The full paper will be published afterwards, with illustrations.

1. *Cidaris (Stereocidaris) tenuispinus*, nov. sp.

The general appearance of test and the form of spine at once distinguish this species from other known members of the genus. Test is regularly arched on abactinal side, but actinally it becomes suddenly curved from ambitus, and has a slight concavity near peristome. The color of membrane is dark brown. Basals are almost equal in both height and breadth, radials distinctly excluded from basals. The interambulacrum is three times as wide as the ambulacrum. The scrobicular area is elliptical in form even at ambitus. The miliaries in each interambulacral plate are very few. The interporiferous area of ambulacrum carries four regularly arranged vertical rows of tubercles. The primary spines are slender. The fully developed one appears from 3rd or 4th interambulacral plate, so that the whole abactinal side seems to be almost devoid of primary spines. The first is longest having the length of 47 mm. and a uniform breadth of 15 mm., in a specimen having the test of 35 mm. in diameter. All spines are grey and very indistinctly striated on the surface, and some being quite smooth. Those near peristome are flattened, but never crenulated. The miliary spines are very small, with a thick brownish membrane at the base.

Loc. : Sagami Sea.

2. *Cidaris (Stereocidaris) microtuberculatus*, nov. sp.

This greatly resembles *S. grandis*, Död. But each basal plate has a dis-

tinctly greater width than height. The inner plates of anal system are not very small compared with outer plates; width of interambulacrum generally greater than that of ambulacrum, being 4—5.4 times as measured at ambitus from tests of 25.5—66 mm. in diameters. Ambulacrum very slightly wavy, with very slightly sunken poriferous zone, and never so strongly curved as in *S. grandis*, Död. Interporiferous area tuberculated with two outer and four inner longitudinal rows, the latter carrying very small scaly spines less than one quarter as long as the outer ones. All miliars on the test and abactinal system smaller in size than in *S. grandis*, Död. Neck of primary spine white. Spines near peristome not flattened even in comparatively young specimens (25.5 mm. diam).

Loc.: Sagami Sea.

3. *Cidaris (Porocidaris) misakiënsis*, nov. sp.

Test more flattened than in *C. elegans*, A. Ag. Covering membrane (especially on abactinal side) and the collar of spine deep brown. Basals not extending to peripheral margin of anal system. Both ambulacral and interambulacral plates at ambitus without any bare median space. There is one vertical row of tubercles between the scrobicular circle and median interambulacral suture. Primary spines white, with a brownish collar 4 mm. high in the longest spine belonging to a test of 39 mm. in diameter, which measured 100 mm. Secondary spines brownish; those on ambulacrum arranged in a single vertical row in each zone.

Loc.: Sagami Sea.

4. *Mespilia levituberculatus*, nov. sp.

Test globular, reddish with yellow or green bare space. Actinal side not so swollen as abactinal side, but not depressed. Primaries and secondaries very small, not perforated or crenulated, thus differing from any other species of *Mespilia*, arranged in each interambulacral zone in two horizontal rows (adoral row having only secondaries) and in five vertical rows at ambitus. Ambulacral pores three in number in each plate, forming two vertical rows. Poriferous zone traversed by two regular or irregular vertical rows of tubercles. On the ambulacrum and interambulacrum there are found bare median spaces crowded with brown pedicellariæ. On the actinal side, however, these bare spaces together with the pedicellariæ are absent. Spines longitudinally striated with orange

stripes, and tipped with white. Near peristome they are flattened.

Beside the above mentioned characters, this species differs from *M. globulus*, A. Ag. in having more tuberculated and higher basal plates, and in median bare space being not so distinctly separated from the portion of tubercles; from *M. Whitmani*, A. Ag. it differs in the height of its test, the number of tubercles at ambulacrum, and the tuberculation of anal plates.

Loc.: Not uncommon in Misaki and Dsushi (Sagami), Kominato (Awa) Gōnoura (Iki).

5. *Salmacopsis pulchellimus*, nov. sp.

Test globular, ambital outline indistinct and circular. The general ground color is green and red, not white and olive brown as in *S. olivacea*, Dörl. At ambitus each ambulacral plate has arcs of three ambulacral pores, forming two vertical rows, extending to peristomal margin. In each plate of ambulacrum there is one horizontal row of alternating primary and secondary tubercles composed of three of the former and a few of the latter, and another horizontal row lying on the upper side, composed of a small number of small secondaries, but the part lying below the first mentioned horizontal row is entirely destitute of tubercles. Surface of both interambulacral and ambulacral plates not smooth, and the furrows converge from each pit to median primary tubercles. Tubercles smooth, not crenulated. Spines longest at ambitus (5 mm. in a test of 21 mm. in diameter), greenish, tipped and banded with light red color.

Loc.: Tomo (Bingo).

6. *Echinostrephus pentagonus*, nov. sp.

This species resembles greatly *E. molare*, A. Ag., but on examining many specimens with the diameter varying between 19.5 mm. and 28 mm. I find the following important differences which justify us in making a new species.

1. The anal system is covered with many milliares of very small plates.
2. There are only three pairs of ambulacral pores in each arc.
3. The whole abactinal system is naked, except the radials which have only two secondaries on each plate.
4. The outline is distinctly pentagonal.

Loc.: Bonin Islands.

7. *Echinus multicolor*, nov. sp.

Test variegated. First in interambulacrum there appears a greenish color which becomes suddenly brown at ambitus; interporiferous area white on abactinal side, but actinally banded with three or four broad brownish bands, leaving narrow white spaces between. Anal plates not provided with tubercles. Two or three small tubercles distributed on each plate of abactinal system. Interambulacral plate at ambitus with four tubercles; ambulacral plate with one primary tubercle, and another smaller one which is present only on the inner side. Poriferous zone with an irregular row of pores, three pairs forming an arc, without any tubercle between each pore. Spines longitudinally striated, tipped with two or three violet stripes, longest one measuring 3 mm. in a test of 14 mm. in diameter.

Number of coronal plate (which is 16), arrangement of ambulacral pores, other structures of test, and the color of spine distinguish this species from all known members of the genus.

Loc.: Akune (Satsuma).

8. *Fibularia acuta*, nov. sp.

The general outline is like that of a hen's egg, pointed anteriorly, and broad posteriorly. The height is not uniform; the anterior part being higher than the posterior and making the wall of actinostome very convex. Apical system lies on the anterior side of test. Anus elliptical, equal in size with or larger than the length of mouth (that is $\frac{1}{2}$ the radius) and separated from the mouth by about $\frac{1}{4}$ the length of the radius. Ambulacral pores extending for 3 mm. in a test 10 mm. long and 6.5 mm. broad, and reaching outwards more than $\frac{1}{2}$ the radius, and diverging greatly. On actinal side there are scattered tentacles coming out from single pores. The tubercles are not closely distributed on the actinal side as in *F. volva*, Agass. The ridges are very slightly visible actinally and this only at the median ambulacral and interambulacral lines. There are no prominent miliars near actinostome as in *F. volva*, Ag., and *F. australis*, Desm.

Loc.: Misaki (Sagami), Shigajima (Chikuzen).

9. *Plesiantlus ogasawaraënsis*, nov. sp.

Test elliptical, with a slightly undulating ambitus, differing from *P. excelsior*,

Död. The test (74 mm. by 86 mm.) is widest not only on the side opposite the anterior extremity of the rosette, but also in the line drawn through its posterior extremity. Aetinal surface concave, not flattened as in *P. excelsior*, Död. Suture between interambulacral and ambulacral plates distinctly recognizable from external surface, while that of *P. japonicus*, Död. is entirely invisible from outside. General ground color grey, poriferous zone reddish. Ambulacral furrow reaches the ambitus, but very indistinct in *P. clypeus*, Död. Spine with red stripes, thus differing from *P. japonicus*, Död. Tubercles fewer than in the last mentioned species. *P. subdepressus*, Gray differs from the present species in having the greatest width at the posterior part, in the test rising suddenly at the extremities of ambulacral petals, in the lanceolate form of the petals, and the yellowish-green ground color with deep carmin colored poriferous zones; *I. humilis*, Leske differs in having the uniform breadth of periostome; *P. rotundis*, A. Ag. differs in having a rather circular outline, spindle shaped ambulacral rosette and the greatest width near centre. It is needless to give the distinction between this and the remaining species.

Loc. : Bonin Islands.

10. *Echinarachnis tenuis*, nov. sp.

Ground color white to light violet. Outline pentagonal, with a strongly wavy contour. Anus lying on the abactinal side; the part of the test where it lies not pointed. Test extremely thin. Ambulacral rosette extending half the radius and widely open. Ambulacral furrow almost unrecognizable. Suture between each two plates visible from surface. Primary and secondary spines have the greatest thickness of membrane. Diameter of the largest specimen 30 mm.

Loc. : Kominato (Awa).